ISO/TC 184/SC 4/WG3 (T21) N723 Date: 1998-05-29

Industrial automation systems and integration – Integration of life-cycle data for oil and gas production facilities – Part 3: Methodology for the development and maintenance of reference data libraries.

ABSTRACT:

This document describes the methodology for development and maintenance of reference data for ISO 15926 "Integration of life-cycle data for oil and gas production facilities"

KEYWORDS:

Industrial data, oil and gas, facility, life cycle, integration, data model, reference data.

Project leader:	Magne Valen-Sendstad POSC/CAESAR PO Box 910 1301 Sandvika Norway	**Part editor**:	Jan Sullivan POSC/CAESAR as PO Box 910 1301 Sandvika Norway
Telephone:	+47 67 57 29 89	Telephone:	+47 67 573155
Fax:	+47 67 57 32 50	Fax:	+47 67 57 3250
Email:	magne.valen-sendstad@posccaesar.com	Email:	jan.sullivan@poscceasar.com

Comments to reader:

This is the first draft of ISO 15926-3, for review by members of WG3 T21 “Oil and gas".

Interim editorial guidelines, and an accompanying Word template, have been used in the preparation of this document. These guidelines apply the requirements of the ISO/IEC Directives 3, and appropriate requirements of the SC4 Supplementary Directives for ISO 10303. Editorial notes and issues within the text are indicated through the use of boxed text.

Document type:	International Standard	Document subtype:	Not applicable
Document stage:	Working Draft (20)	Document language:	E
File name:	part3v02.doc	Template:	iso sc4 (word 97).dot

Contents

Page

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 15926-1 was prepared by Technical Committee ISO/TC184, *Industrial automation systems and integration*, Subcommittee SC4, *Industrial data*.

ISO 15926 consists of the following parts under the general title *Industrial automation systems and integration – Integration of life-cycle data for oil and gas production facilities*:

— Part 1, Overview and fundamental principles;

— Part 2, Data model;

— Part 3, Methodology for the development and maintenance of reference data libraries;

— Part 4, Reference data[1];

— Part 5, Conformance[1].

This part of ISO 15926 describes the methodology for the development and maintenance of reference data libraries for this International Standard.

[1] To be proposed as an additional Part of this International Standard.

Introduction

ISO 15926 is an International Standard for the representation of oil and gas production facility life-cycle information. This representation is specified by a generic, conceptual data model that is suitable as the basis for implementation in a shared database or data warehouse. The data model is designed to be used in conjunction with reference facility data – standard instances that represent information common to a number of users, production facilities, or both.

ISO 15926 is organized as a number of parts, each published separately. This part of ISO 15926 specifies the methodology for the development and maintenance of reference data of ISO 15926.

Industrial automation systems and integration – Integration of life-cycle data for oil and gas production facilities – Part 3 – Methodology for the development and maintenance of reference data libraries.

1 Scope

This part of ISO 15926 describes the required procedures for changing or adding to the reference facility data of ISO 15926.

ISO 15926 – 2 describes a conceptual data model that defines how information about oil and gas production facilities shall be represented as computer processable data.

ISO 15926 – 4 uses the data model of Part 2 to define a set of reference data for information common to oil and gas production facilities for design, engineering and maintenance of process, electrical and instrumentation systems.

Additional sets of reference data for other technical areas within the scope of the ISO 15926 may be defined within Part 4 of ISO 15926. The additional reference data sets may define new data and or refer to the data of other defined reference data sets.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 15926-1: 1998 Industrial automation systems and integration – Integration of life-cycle data for oil and gas production facilities – Part 1: Overview and fundamental principles.

ISO 15926-2: 1998 Industrial automation systems and integration – Integration of life-cycle data for oil and gas production facilities – Part 2: Data model.

ISO 15926-4: 1998 Industrial automation systems and integration – Integration of life-cycle data for oil and gas production facilities – Part 4: Reference data.

ISO 10303-12: 1994 Technical Report. Industrial automation systems and integration – Product data representation and exchange – Part 12 The EXPRESS I language reference manual.

3 Terms, definitions, and abbreviated terms

For the purposes of this International Standard, the following terms, definitions and abbreviations of ISO 15926 – 1 apply.

Data set – a set of instances of the ISO 15926 – 2 data model.

4 Development of new reference data sets

4.1 New reference data sets

ISO 15926-4 defines a core set of reference data. Additional sets of reference data may be defined. New data sets shall be registered as new sets of reference data within ISO 15926-4 by the registration authority.

New reference data sets shall

— Comply with the content constraints that are given below

— Be documented using EXPRESS-I

New reference data sets may include data that is defined and included in other data sets of ISO 15926 – 4.

On receipt of a proposed new reference data set t he registration authority shall :

— Check for compliance with the content constraints

— Agree such alterations to the data set with the proposers as are deemed necessary by the registration authority

— Register the identity of the new set

— Publish the new data set in accordance with the presentation rules given below.

4.2 Content constraints

New reference data defined for a new data set shall:

— Be within the industrial business scope of ISO 15926;

— Be a population of the data model defined in ISO 15926-2, obeying all the rules contained therein;

— Not represent information that is represented by the reference facility data defined in other Parts i.e. there shall be no duplication of information by reference facility data;

— Contain relationships to the reference facility data of other sets where such relationships are true.

NOTE 1 – For example, if a new instance of class is defined, the definer should consider if the class is a specialisation or generalisation of classes defined by the reference facility data of other Parts and define the appropriate specialisation instances.

NOTE 2 – Recommended guidelines for defining reference data are given in Appendix A.

4.3 Presentation

The reference data of a new part shall be presented using the EXPRESS I lexical instance notation.

The instance identifiers used in the EXPRESS I presentation shall be unique within the instances of the Set.

Reference data sets shall be available for distribution by world wide web from the following URL address:

https://....

4.4 References to data of other sets

A reference data set may include reference data defined in other sets.

Where such inclusions are made, the new set of data shall consist of the new reference data of the set and the other included reference data. Inclusion of data from another set shall result in the inclusion of all data the included data is related to in the included set.

An alternative to this is to demand that all included data be explicitly stated.

The USE FROM statement shall be used to include reference data from other authorised reference data sets.

We need some formalism here to define the syntax of including instances from another part. It might look like USE FROM set x (#123 as #1; #124 as #2; …….)

4.5 Identification

The instance identifying data shown in the EXPRESS I presentation may be made visible to an application or data store by defining for each instance identifier ‘abc’

— An instance 1 corresponding to abc;

— An instance 2 = text (text_valuefi ‘abc’;) ;

— An instance 3 = identification(described→@1; descriptor→@2;);

— An instance 4 = context_for_identification (identification→@3; context →@5;);

Where

— 5 = information_content_class( );

— 6 = text(text_valuefi ’ISO-15926-x’;) ;and

— 7 = identification(described→@5; descriptor→@6;);

5 Maintenance

Maintenance of the ISO 15926 - 4 reference data shall be administered by a Maintenance Authority in accordance with IEC/ISO Directives Part 1: Annexes M and N.

Errors and omissions found within the Reference data defined by Parts of ISO 15926 shall be reported using the SC4 SEDS procedure.

The Maintenance Authority shall assess each SEDS report and initiate the issue of

— Technical corrigenda

— New editions

— Amendments

Errors and omissions handled by technical corrigenda shall be restricted to:

— Corrections to contents of text strings

— Corrections to incorrect instance references

— Deletion of associations that represent incorrect factual assertions

All additions shall be made by defining a new reference data set, which may make references to the data of other previously defined reference data sets.

Annex A
(Informative)

Guidelines for defining additional reference facility data

A.1 Scope

This annex of ISO 15926 – 3 describes the methodology for the development and maintenance of ISO 15926 compliant reference facility data.

Reference facility data may be, but is not limited to, populations of the following entities of the data model:

— Activity Class

— Characteristic Class

— Measure Class

— Class of Class

— Functional Object Class

— Information Content Class

— Specific Information Content

— Physical Object Class

— Typical Physical Object

— Unit of Measure

A.2 Information about instances

A.2.1 Information about all object instances

The minimum data held for each instance is:

— Name

— Definition

— ISO 15926 SID

— Status

A.2.2 Information about class instances

Additional data held for each class instance is:

— Alternative Name

— Subject Area

— Remarks

— Abbreviation

— Symbol

Every class should as a minimum be defined by:

— Class name

— Definition.

— One or more instances of ‘class_specialisation’. The association(s) shall be to its most specialised superclass.

— Subject Area

— Status

And may be given

— Alternative Name

— Remark

— Abbreviation

— Symbol

A.3 Rules for populations

A.3.1 Class Names

A class name should satisfy the following rules:

— Class name shall be in the UK English language.

— Class names shall be in single, not plural.

- For example, *vessel* and not *vessels* or *fitting* and not *fittings*.

— Multi-word class names shall be in the normal word sequence for the applied language.

- For example, 'centrifugal pump' and not 'pump centrifugal'.

— No abbreviations nor underscores nor uppercase should be used.

- For example: *centrifugal pump* and not *centrif._pump.* However, acronyms and widely used abbreviations may be uppercase, for example ISO, ANSI, EN, ASTM, PC etc.

— Artificial class names should be avoided, but normal engineering class names should be used instead.

- For example, 'piping_segment_cmpnt' is not used in normal engineering practice and thus it should not be used.

A.3.2 Class Definitions

Class definitions shall be full sentences in the English language. The sentences shall start with ‘A’ followed by the name of the class of which it is a specialisation, then followed by a description of the aspect which is used for classification, i.e. what distinguishes it from that supertype and its neighbours.

For example:

Superclass: *bearing*

Class Name: *ball bearing*

Definition: A *bearing, which* contains balls.

A.3.3 Alternative Class Names

Alternative names are allowed and may be accompanied by a context in which the alternative name is valid.

For example, *ship* might be seen as a synonym of *sea going vessel*.

Synonyms within a language context are e.g. synonyms in French, or German.

A.3.4 ISO 15926 SID

All instances in the RDL will have an identifier, which is unique within the RDL. This unique id is a sequential system generated number.

A.3.5 Status

Indicates the status of an instance in the RDL.

Examples of statuses are:

— 'proposed'

— 'accepted'

— 'issue'

— 'deleted'

— 'rejected'

A.3.6 Subject Area

Indicates a context of an instance in the RDL. Examples are:

To be included

A.3.7 Remarks

Reference to documents, dictionaries, standards etc. used to define the class.